



UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE
United States Patent and Trademark Office
Address: COMMISSIONER FOR PATENTS
P.O. Box 4450
Alexandria, Virginia 22313-1450
www.uspto.gov

| APPLICATION NO. | FILING DATE | FIRST NAMED INVENTOR | ATTORNEY DOCKET NO. | CONFIRMATION NO. |
|--|-------------|----------------------|---------------------|------------------|
| 09/672,440 | 09/28/2000 | RONAK PATEL | 114596-29-0125BS | 7408 |
| 38492 | 7590 | 05/17/2006 | EXAMINER | |
| WILLKIE FARR & GALLAGHER LLP INTELLECTUAL PROPERTY LEGAL ASSISTANTS 787 SEVENTH AVE NEW YORK, NY 10019-6099 | | | COLEMAN, ERIC | |
| | | | ART UNIT | PAPER NUMBER |
| | | | 2183 | |

DATE MAILED: 05/17/2006

Please find below and/or attached an Office communication concerning this application or proceeding.

| | | | | |
|------------------------------|------------------------|--|---------------------|--|
| Office Action Summary | Application No. | | Applicant(s) | |
| | 09/672,440 | | PATEL ET AL. | |
| | Examiner | | Art Unit | |
| | Eric Coleman | | 2183 | |

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 01 March 2006.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-45 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☒ Claim(s) 1-33 is/are allowed.
- 6) ☒ Claim(s) 34,36,39-41,44 and 45 is/are rejected.
- 7) ☒ Claim(s) 35,37,38,42 and 43 is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. _____.
 3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413) |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | Paper No(s)/Mail Date. _____ |
| 3) <input checked="" type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08) | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152) |
| Paper No(s)/Mail Date _____ | 6) <input type="checkbox"/> Other: _____ |

DETAILED ACTION

1. Claims 1-45 are presented for examination.

Claim Rejections - 35 USC § 103

2. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

3. Claims 34,36,39,40,41,44,45 are rejected under 35 U.S.C. 103(a) as being unpatentable over Danish (patent No. 5,121,472) in view of Tannenbaum (book entitled Structured Computer Organization).

4. Danish taught the invention as claimed including a data processing ("DP") comprising; (as per claim 34,36,40) the steps of during execution of a program on a computer, recognizing in hardware a condition in which an instruction is to affect the function to be performed by a second instruction [the single step handler examines the next instruction in hardware interrupt handler to see if it is an instruction to retrieve data from the keyboard (e.g., see figs. 2,3b) This keyboard input instruction provides data to be used by instructions to be executed, and provides an interrupt to instruction processing (e.g. see col. 1, lines 49-66) and therefore affects the function of instructions to be performed], and in response, setting the processor into single-step mode (e.g., see col. 2, line 65-col. 3, line 56); taking a single-step exception after executing the

Art Unit: 2183

second instruction, and setting the processor out of single-mode[after processing keyboard input the single step exception handler performed the single step interrupt removing the central processing unit from single step mode and then returning control to the main control program (e.g., see col. 3, lines 43-64) .

5. Danish did not expressly detail the operation recognizing or setting the computer out of single step mode was done in hardware. However Tannenbaum taught hardware and software are logically equivalent and any operation performed by software can also be built directly into hardware and any instruction executed by hardware can also be simulated in software. The decision to put certain functions in hardware and others in software is based on such factors as cost, speed, reliability and frequency of expected changes (e.g., see page 4). Consequently one of ordinary skill implementing the operations of the Danish would have been motivated to implement all or part of the Danish system in hardware depending on cost , speed , reliability and frequency of expected changes.

6. It would have been obvious to one of ordinary skill in the DP art to combine the teachings of Danish and Tannenbaum. Danish was directed to a system that processed interrupt in a system that used hardware processing (e.g., see col. 5, lines 27-41) and software (e.g., see col. 5, lines 15-25). Tannenbaum taught the motivation for using the hardware and software in a DP system (e.g., see page 4). Consequently one of ordinary skill would have been motivated to incorporate the Tannenbaum teaching of the reasons for using hardware versus software or combination thereof to provide the

Art Unit: 2183

optimum implementation Danish teachings in view of cost, speed, reliability and frequency of expected changes.

7. As to claim 39, Danish taught writing to stack register (e.g., see col. 6, lines 26-39) (the operation of the stack register in Danish reference is no different than the operation of the stack segment register and therefore meets the stack segment register limitation).

8. As per claim 44, Danish taught servicing a single step exception including querying a debug touch record (e.g., see col. 5, lines 38-53)[the touch record is a record of keyboard input or which keyboard keys were touched for simulation and this data was placed into the keyboards register].

9. As per claim 45, Danish taught the first instruction writes an interrupt enable flag of the computer (e.g., see col. 3, lines 2-56) [processor is placed in single step mode by setting its single step flag and pointing instruction processor to keyboard hardware interrupt routine, examining the next instruction of the keyboard hardware interrupt handler routine with the single step interrupt handler].

10. As to claim 41, Danish taught the instruction writes to a group of interrupt flags (e.g., see col. 5, lines 7-42).

Response to Arguments

11. Applicant's arguments with respect to claims 34,36,39,40,41, 44,45 have been considered but are moot in view of the new ground(s) of rejection.

Allowable Subject Matter

Art Unit: 2183

12. Claims 1-33 are allowed.
13. Claim 35,37,38,42,43, are objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

Conclusion


The prior art made of record and not relied upon is considered pertinent to applicant's disclosure.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Eric Coleman whose telephone number is (571) 272-4163. The examiner can normally be reached on Monday-Thursday.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Eddie Chan can be reached on (571) 272-4162. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

EC


ERIC COLEMAN
PRIMARY EXAMINER